

REMARKS/ARGUMENTS

This application has been carefully reviewed in light of the final Office Action dated April 22, 2008. Claims 1 to 44 are in the application, with Claims 1, 11, 14, 16 to 21, 23, 25, 33 and 35 to 44 being the independent claims. Reconsideration and further examination are respectfully requested.

Specification Objections

The abstract is objected for alleged informalities. The amendments to the abstract are seen to attend to this objection. Reconsideration and withdrawal of this objection are respectfully requested.

Claim Rejections – 35 USC § 102

Claims 1, 2, 4, 5, 7, 10, 14, 15, 17, 19, 21, 22, 25 to 28, 30, 32, 35, 37, 39, 41 and 43 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,914,950 (Tiedemann). This rejection is respectfully traversed.

Claim 1 generally concerns an apparatus. The apparatus includes a first encoder for receiving a plurality of symbol streams for respective ones of a plurality of mobile stations and encoding each of the symbol streams with one of a plurality of covering sequences to form a plurality of covered sequences. The apparatus further includes a summer for summing the plurality of covered sequences to form a first Code Division Multiplexed (CDM) signal, and a second encoder for covering the first CDM signal with a covering sequence to form a first covered CDM signal.

Thus, among its many features, Claim 1 provides for receiving a plurality of symbol streams for respective ones of a plurality of mobile stations. The applied reference of Tiedemann is not seen to disclose or suggest at least this feature.

Tiedemann concerns a method and apparatus for reverse link scheduling. As shown in FIG. 5 of Tiedemann, a number of BSPK and QSPK outputs are fed into modulators 146 and 148 of modulator 74. The Office Action at page 3 cites to column 26, lines 40 to 50 of Tiedemann, and alleges that “each encoder is for a different channel thus plurality of encoders are associated with a plurality of devices.” Applicants respectfully disagree.

In particular, column 26, lines 40 to 50 discloses that one BPSK Walsh modulator 146 is assigned to each BPSK channel encoder 104, and that one QPSK Walsh modulator 148 is

assigned to each QPSK channel encoder 106. However, as can be seen in FIG. 4 of Tiedemann, the BSPK and QSPK outputs are generated from data source 70, which Tiedemann describes as being information to be transmitted to a cell. See Tiedemann, column 24, lines 14 to 16. Accordingly, the BSPK and QSPK outputs of Tiedemann are understood to be for a single cell, and not for respective ones of a plurality of mobile stations. Therefore, independent claim 1 is believed to be allowable over Tiedemann.

Claim 1 is therefore believed to be allowable over the applied reference.

Independent claims 17, 21, 25, 37 and 41 include limitations similar to those discussed above with respect to Claim 1. Accordingly, these claims are believed to be allowable over Tiedemann for at least the same reasons as Claim 1.

Independent Claim 14 generally concerns an apparatus, operable with a CDM signal, covered with a first covering sequence, including one or more sub-CDM signals. Each of the one or more sub-CDM signals include a plurality of symbol sequences for respective ones of a plurality of mobile stations covered by a second plurality of covering sequences, respectively. The apparatus includes a receiver for receiving the CDM signal, and a first despreader for despreading the received CDM signal with the first covering sequence to produce a despread CDM signal. The apparatus further includes a second despreader for despreading the despread CDM signal with one of the second covering sequences to produce a recovered symbol sequence.

Thus, among its many features, Claim 14 provides that the plurality of symbol sequences are for respective ones of a plurality of mobile stations. As discussed above with respect to Claim 1, Tiedemann is not understood to disclose this feature. Accordingly, Claim 14 is believed to be allowable over Tiedemann for at least the same reasons as Claim 1.

Independent Claims 19, 35, 39 and 43 include limitations similar to those discussed above with respect to Claim 14. Accordingly, these claims are believed to be allowable over Tiedemann for at least the same reasons as Claim 14.

Claims 2, 4, 5, 7, 10, 15, 22, 26 to 28, 30 and 32 are dependent from the independent claims discussed above and therefore are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

Turning to the next rejection, Claims 11, 13, 16, 18, 20, 23, 24, 33, 34, 36, 38, 40, 42 and 44 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 6,061,359 (Schilling). This rejection is respectfully traversed.

Independent Claim 11 generally concerns an apparatus including a plurality of CDM encoders for receiving a plurality of symbol streams and producing a plurality of covered CDM signals. Each CDM encoder includes a first encoder for receiving the plurality of symbol streams and encoding each of the symbol streams with one of a plurality of covering sequences to form a plurality of covered sequences, and a summer for summing the plurality of covered sequences to form a CDM signal. Each CDM encoder further includes a time multiplexer for receiving the plurality of covered CDM signals and forming a Time Division Multiplexed (TDM) signal comprising the plurality of covered CDM signals. In addition, each CDM encoder includes a second encoder for covering the TDM signal with a covering sequence to form a covered TDM/CDM signal.

Thus, among its many features, Claim 11 provides for (i) forming a TDM signal comprising a plurality of covered CDM signals, and (ii) covering the TDM signal with a covering sequence to form a covered TDM/CDM signal. The applied reference of Schilling is not seen to disclose or suggest at least this feature.

Schilling concerns an increased-capacity, packet spread-spectrum system. See Schilling, Abstract. The Office Action at pages 2 and 9 cites to column 13, table 4 of Schilling for the alleged disclosure of forming a TDM signal comprising a plurality of covered CDM signals. Applicants respectfully disagree.

In particular, column 13, table 4 of Schilling is seen to disclose that a duplex method associated with a packet switching application is Time Division Duplex. Although Schilling may be seen to disclose the use of TDM, nothing in Schilling is seen to disclose or suggest forming a TDM signal comprising a plurality of covered CDM signals.

Further, the Office Action alleges the multiplier devices 48 and 148 of FIG. 3 in Schilling cover a TDM signal with a covering sequence to form a covered TDM/CDM signal. Applicants respectfully disagree.

In particular, multiplier devices 48 and 148 are understood to shift multichannel-spread-spectrum signals to carrier frequencies. See Schilling, column 16, line 66 to column 17, line 7. However, this shift to carrier frequencies is not understood to correspond to covering a signal

with a covering sequence, much less to covering a TDM signal with a covering sequence to form a covered TDM/CDM signal.

Accordingly, Schilling is not seen to disclose or suggest (i) forming a TDM signal comprising a plurality of covered CDM signals, and (ii) covering the TDM signal with a covering sequence to form a covered TDM/CDM signal.

Claim 11 is therefore believed to be allowable over the applied reference.

Independent claims 18, 23, 33, 38 and 42 include limitations similar to those discussed above with respect to Claim 11. Accordingly, these claims are believed to be allowable over Schilling for at least the same reasons as Claim 11.

Independent Claim 16 is directed to an apparatus, operable with a CDM signal, covered with a first covering sequence, comprising one or more TDM signals, each of the one or more TDM signals comprising one or more sub-CDM signals, each of the one or more sub-CDM signals comprising a plurality of symbol sequences covered by a second plurality of covering sequences, respectively. The apparatus includes a receiver for receiving the CDM signal, a first despreader for despreading the received CDM signal with the first covering sequence to produce a despread CDM signal, a demultiplexer for selecting one of the TDM signals from the despread CDM signal, and a second despreader for despreading the selected TDM signal with one of the second covering sequences to produce a recovered symbol sequence.

As discussed with respect to claim 11, Schilling is not understood to disclose forming a TDM signal comprising a plurality of covered CDM signals and covering the TDM signal with a covering sequence. Accordingly, Schilling cannot disclose despreading a received CDM signal with a first covering sequence to produce a despread CDM signal, selecting one of one or more TDM signals from the despread CDM signal, and despreading the selected TDM signal with one of the second covering sequences to produce a recovered symbol sequence. Therefore, independent claim 16 is believed to be allowable over Schilling.

Independent claims 20, 36, 40 and 44 include limitations similar to those discussed above with respect to Claim 16. Accordingly, these claims are believed to be allowable over Schilling for at least the same reasons as Claim 16.

Claims 13 and 24 are dependent from the independent claims discussed above and therefore are believed to be allowable over the applied references for at least the same reasons.

Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

Claim Rejections – 35 USC § 103

Claims 3 and 31 are rejected under 35 U.S.C. § 103(b) over Tiedemann in view of U.S. Patent No. 6,134,215 (Agrawal); Claims 6 and 29 are rejected under 35 U.S.C. § 103(b) over Tiedemann in view of U.S. Patent No. 6,389,056 (Kanterakis); and Claim 12 is rejected under 35 U.S.C. § 103(b) over Schilling in view of Tiedemann. These rejections are respectfully traversed.

Claims 3, 6, 12, 29 and 31 depend, either directly or indirectly, from respective ones of the independent claims discussed above. In view of the submitted allowability of each of the independent claims, each of these dependent claims is believed to be in condition for allowance for at least the same reasons provided above with respect to the independent claims.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any additional fees or credit any overpayments that may be due with this response to Deposit Account No. 170026.

Respectfully submitted,

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